

9

- a first set of first LEDs for generating first light having a first wavelength during a first emission time frame;
 - a second set of second LEDs for generating second light having a second wavelength during a second emission time frame, the second wavelength being different from the first wavelength;
 - a first set of first optical fibers, each first optical fiber including at opposite ends thereof a first input terminal for receiving first light from at least one of the first LEDs and a first output terminal to propagate the first light from directly or indirectly to an imaging device;
 - a second set of second optical fibers, each second optical fiber including at opposite ends thereof a second input terminal for receiving second light from at least one of the second LEDs and a second output terminal to propagate the second light directly or indirectly to the imaging device; and
 - a display controller adapted to receive color image data from a data source and convert the color image data to at least first and second color frame sequential data for driving the imaging device, the display controller also being adapted to control the first and second emission time frames of the respective first and second sets of LEDs such that the imaging device implements the first color frame sequential data during the first emission time frame and the imaging device implements the second color frame sequential data during the second emission time frame.
2. The image projection system of claim 1, further comprising:
- a third set of third LEDs for generating third light having a third wavelength, the third wavelength being different from the first and second wavelengths; and
 - a third set of third optical fibers, each third optical fiber including at opposite ends thereof a third input terminal for receiving third light from at least one of the third LEDs and a third output terminal to propagate the third light directly or indirectly to the imaging device, the display controller being adapted to convert the color image data to first, second, and third color frame sequential data for driving the imaging device, the display controller also being adapted to control first, second, and third emission time frames of the respective first, second, and third sets of LEDs such that the imaging device implements the first, second, and third color frame sequential data during the respective first, second, and third emission time frames.
3. The image projection system of claim 2 in which the first, second, and third LEDs emit blue, green, and red light, respectively.
4. The image projection system of claim 1 in which the imaging device comprises a DMD, LCOS, or LCD.
5. The image projection system of claim 1 in which the data source comprises a personal computer.
6. A method for projecting color display information, comprising:
- receiving color image data from a data source;
 - converting the color image data to at least first and second color frame sequential data for driving an imaging device;
 - generating first light at a first wavelength from a first set of first LEDs during a first emission time frame;
 - propagating the first light through a first set of first optical fibers, each first optical fiber including at opposite ends thereof a first input terminal for receiving first light

10

- from at least one of the first LEDs and a first output terminal to propagate the first light directly or indirectly to the imaging device;
 - implementing the first color frame sequential data during the first emission time frame at the imaging device to form a first color frame image;
 - generating second light at a second wavelength from a second set of second LEDs during a second emission time frame, the second wavelength being different from the first wavelength;
 - propagating the second light through a second set of second optical fibers, each second optical fiber including at opposite ends thereof a second input terminal for receiving second light from at least one of the second LEDs and a second output terminal to propagate the second light directly or indirectly to the imaging device; and
 - implementing the second color frame sequential data during the second emission time frame at the imaging device to form a second color frame image.
7. The method of claim 6, further comprising:
- converting the color image data to first, second, and third color frame sequential data for driving an imaging device;
 - generating third light at a third wavelength from a third set of third LEDs during a third emission time frame;
 - propagating the third light through a third set of third optical fibers, each third optical fiber including at opposite ends thereof a third input terminal for receiving third light from at least one of the third LEDs and a third output terminal to propagate the third light directly or indirectly to the imaging device; and
 - implementing the third color frame sequential data during the third emission time frame at the imaging device to form a third color frame image.
8. The method of claim 7, further comprising:
- emitting blue, green, and red light from the first, second, and third LEDs, respectively.
9. The method of claim 6 in which the imaging device comprises a DMD, LCOS, or LCD.
10. The method of claim 9 in which the imaging devices comprise different types of LCDs.
11. An image projection system for a color display device, comprising:
- a first set of first LEDs for generating first light having a first wavelength;
 - a second set of second LEDs for generating second light having a second wavelength, the second wavelength being different from the first wavelength;
 - a first set of first optical fibers, each first optical fiber including at opposite ends thereof a first input terminal for receiving first light from at least one of the first LEDs and a first output terminal to propagate the first light directly or indirectly to a first imaging device;
 - a second set of second optical fibers, each second optical fiber including at opposite ends thereof a second input terminal for receiving second light from at least one of the second LEDs and a second output terminal to propagate the second light directly or indirectly to a second imaging device;
 - a display controller adapted to receive color image data from a data source and convert the color image data to at least first and second color data for driving the respective first and second imaging devices to project respective first and second images; and

11

a combiner adapted for receiving simultaneously the first and second images from the respective first and second imaging devices and combining the first and second images to form a composite image.

12. The image projection system of claim 11, further comprising:

a third set of third LEDs for generating third light having a third wavelength, the third wavelength being different from the first and second wavelengths; and

a third set of third optical fibers, each third optical fiber including at opposite ends thereof a third input terminal for receiving third light from at least one of the third LEDs and a third output terminal to propagate the third light directly or indirectly to a third imaging device, the display controller being adapted to convert the color image data to first, second, and third color data for driving the respective first, second, and third imaging devices to propagate respective first, second, and third images to the combiner, the combiner being adapted for receiving simultaneously the first, second, and third images and for forming a composite image.

13. The image projection system of claim 12 in which the first, second, and third LEDs emit blue, green, and red light, respectively.

14. The image projection system of claim 11 in which the imaging devices comprise LCDs.

15. The image projection system of claim 11 in which the data source comprises a personal computer.

16. A method for projecting color display information, comprising:

receiving color image data from a data source;

converting the color image data to at least first and second color data for driving respective first and second imaging devices;

generating first and second light of respective first and second different wavelengths from respective first and second sets of respective first and second LEDs;

propagating the first and second light through respective first and second sets of respective first and second optical fibers, each first optical fiber including at opposite ends thereof a first input terminal for receiving first light from at least one of the first LEDs and a first output terminal to propagate the first light directly or indirectly to a first imaging device and each second optical fiber including at opposite ends thereof a second input terminal for receiving second light from at least one of the second LEDs and a second output terminal to propagate the second light directly or indirectly to a second imaging device;

implementing the first and second color data at the respective first and second imaging devices to form respective first and second color images;

12

propagating the first and second color images to a combiner; and

projecting a composite color image from the combiner.

17. The method of claim 16, further comprising:

converting the color image data to first, second, and third color data for driving an imaging device;

generating third light at a third wavelength from a third set of third LEDs;

propagating the third light through a third set of third optical fibers, each third optical fiber including at opposite ends thereof a third input terminal for receiving third light from at least one of the third LEDs and a third output terminal to propagate the third light directly or indirectly to a third imaging device;

implementing the third color data at the third imaging device to form a third color image;

propagating the first, second, and third color images to the combiner; and

projecting a composite color image from the combiner.

18. The method of claim 17, further comprising:

emitting blue, green, and red light from the first, second, and third LEDs, respectively.

19. The method of claim 16 in which the imaging devices comprise LCDs.

20. The method of claim 19 in which the imaging devices comprise different types of LCDs.

21. The method of claim 8, further comprising:

generating first, second, and third light during a fourth emission time frame.

22. The image projection system of claim 1 in which the data source comprises a multimedia or video device.

23. The image projection system of claim 11, further comprising:

a white light source for generating white light; and

an extra set of extra optical fibers, each extra optical fiber including at opposite ends thereof an extra input terminal for receiving white light from the white light source and an extra output terminal to propagate the white light directly or indirectly to the combiner.

24. The image projection system of claim 13, further comprising:

a white light source for generating white light; and

an extra set of extra optical fibers, each extra optical fiber including at opposite ends thereof an extra input terminal for receiving white light from the white light source and an extra output terminal to propagate the white light directly or indirectly to the combiner.

* * * * *

25. An image projection system for a color display device, comprising:

a light source including

a substrate,

a first set of LEDs disposed on the substrate for generating first light having a first wavelength,

a second set of LEDs co-disposed on the substrate for generating second light having a second wavelength, and

a third set of LEDs co-disposed on the substrate for generating third light having a third wavelength, the first, second, and third wavelengths being different wavelengths;

a light guide including

a first set of optical fibers optically coupled to the first set of LEDs to propagate the first light to a first imaging device,

a second set of optical fibers optically coupled to the second set of LEDs to propagate the second light to a second imaging device, and

a third set of optical fibers optically coupled to the third set of LEDs to propagate the third light to a third imaging device;

a display controller adapted to receive color image data from a data source and convert the color image data to at least first, second and third color data for driving the respective first, second and third imaging devices to project respective first, second and third images; and

a combiner adapted for receiving simultaneously the first, second and third images from the respective first, second and third imaging devices, and combining the first, second and third images to form a composite image.

26. The image projection system of claim 25, wherein the first, second and third LEDs emit blue, green and red light, respectively.

27. The image projection system of claim 25, wherein the image projection system further comprises a cover plate having a plurality of holes to hold in place said first, second and third plurality of optical fibers.

28. The image projection system of claim 27, wherein the first, second, and third LEDs, and said plurality of holes are arranged in corresponding offsetting rows.

29. The image projection system of claim 25, wherein each of the first, second, and third optical fibers has a concave shaped end to facilitate reflection into the optical fiber, light emitted from a corresponding LED.

30. The image projection system of claim 25, wherein the image projection system further comprises first, second and third reflectors correspondingly disposed at ends of the first, second and third optical fibers to facilitate reflection into the optical fibers, light emitted from the corresponding LEDs.

31. The image projection system of claim 30, wherein the image projection system further comprises first, second and third condenser lens correspondingly disposed in between said first, second, and third reflectors and said ends of the first, second and third optical fibers to contribute to said facilitating of said reflection into the optical fibers, light emitted from the corresponding LEDs.

32. The image projection system of claim 26 in which the first, second and third imaging devices comprise LCDs.

33. The image projection system of claim 26 in which the data source comprises a personal computer.